

Argonne National Laboratory

ECOLOGICAL SURVEY OF ARGONNE NATIONAL LABORATORY

by

A. Steven Messenger, Walter R. Suter,
and John A. Wagner

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ABSTRACT

A biological inventory was taken on the grounds of Argonne National Laboratory, primarily during the summer of 1967, as a preliminary to beginning a program of ecological research at the Laboratory. This report contains checklists of the major plants and animals on the site, a vegetation association map, a quantitative survey of old-field quadrats, and a list of known prairie relicts of the Chicago region. The species checklists are not complete, but show nearly 200 species of plants and over 800 species of animals on approximately 3500 acres of the laboratory property, of which 1275 are devoted to laboratory operations. The remainder is largely unmanaged land in various stages of old-field succession or in coniferous and deciduous forests. The coniferous trees occur as introduced plantations consisting largely of jack pine (*Pinus banksiana*) whereas the deciduous forests are mainly naturally occurring oak (*Quercus spp.*), associations that may have been utilized as grazed woodlots when the area was devoted to agriculture. The old fields are dominated by weedy Eurasian annual and perennial grasses and forbs, with occasional mixtures of agricultural grasses and surviving native prairie grasses and forbs. The old fields are apparently returning to a deciduous forest climax. There are no examples of native undisturbed climax vegetation, with the possible exception of isolated ponds and marshes in remote locations which were unsuitable for agricultural exploitation.

INTRODUCTION

Argonne National Laboratory occupies a site of some 3500 acres in a rapidly urbanizing area near Chicago, Illinois. Approximately 1275 acres of the site are devoted to laboratory structures, roadways, and landscaped grounds; the remainder constitutes a peripheral buffer area. The Biology Committee of the Associated Midwest Universities (now merged with Argonne Universities Association) recognized the potential ecological value

of the buffer areas of the Laboratory and directed that studies be initiated to evaluate the feasibility of beginning an ecology program at the Laboratory. One aspect of the studies consisted of a biological inventory of the site, which was carried out principally by the authors of this report. Results of the inventory are presented in this report.

The Argonne property has considerable natural diversity, including the DesPlaines River and its flood plain, abandoned quarries, a variety of lowland and upland forests, old fields, pine plantations, streams, lakes, marshes, and a variety of temporary ponds entrapped in forests and fields. Argonne National Laboratory planted pines or maintained oak forests and old fields in a buffer zone around the central research area when it was established in 1948 in DuPage County, southwest of Chicago. Although the property was extensive and relatively undisturbed since the Laboratory was established, field-oriented biologists were virtually absent. Little had been done, ecologically, until Associated Midwest Universities, acting through its Biology Committee, established an ad hoc ecology committee to evaluate the area and plan programs for its use. The ad hoc committee, coordinating with the Laboratory and Associated Midwest Universities, decided to survey the property ecologically as a necessary preliminary to preparing a proposal for a research program. This was begun during the summer of 1967. The ad hoc committee also considered reestablishment of a native Illinois prairie and chose a site of nearly 100 acres for this purpose. A special effort of the survey team was directed to this site, although collections continued to be made from the entire property.

METHODS

The survey team mapped, sampled, and tabulated the biota, concentrating on terrestrial associations. The inventory is necessarily incomplete due to lack of time and personnel; however, the objective of obtaining basic checklists which could be updated periodically was met.

Qualitative collections were often made visually or manually for larger organisms (e.g., trees and vertebrates). Most of the smaller animals were collected in light or bait traps, by sweeping the vegetation with an insect net, or by using the automatic extraction provided by a Berlese funnel, especially on peculiar habitats with litter accumulations as described in Suter (1966).* Seines and dip nets were used for aquatic work. Quantitative collecting included mapping of floral associations on aerial photographs, random weekly quadratting involving total collection of organisms from square-meter plots, mammal trapping using a Calhoun trap line, and total plant counts of selected areas.

* Suter, W. R., Techniques for the collection of microcoleoptera of the families Pselaphidae, Ptiliidae, and Scydmaenidae, The Coleopterists' Bull. 20, 33-38 (1966).

RESULTS

The survey showed the diversity of the area, since the checklist tabulation (see Table I) includes nearly 200 plant species and over 800 animal species, even though it was amassed primarily during the summer months of a single year and includes mostly those forms for which identifications were fairly readily available.

TABLE I. Summary of Numbers of Species Observed at Argonne National Laboratory during 1967-68 Survey

Component	Named Species	Other Species ^a
Plants	166	10
Protozoa.	1	1
Aschelminthes	0	1
Annelida	0	2
Mollusca.	5	1
Arthropoda / Arachnida.	1	14
/ Crustacea.	1	1
/ Diplopoda.	1	1
/ Chilopoda.	4	0
/ Insecta / Collembola	11	3
/ Aptera	0	1
/ Thysanura.	0	1
/ Ephemeroidea	0	1
/ Odonata.	10	1
/ Blattaria	2	0
/ Phasmida	1	0
/ Orthoptera.	10	3
/ Dermaptera	1	0
/ Corrodentia	0	1
/ Thysanoptera.	7	3
/ Homoptera.	23	15
/ Heteroptera-Hemiptera	48	4
/ Coleoptera.	327	59
/ Neuroptera	1	0
/ Trichoptera	0	1
/ Lepidoptera.	33	3
/ Diptera	28	31
/ Hymenoptera	30	50
Chordata / Osteichthyes	9	0
/ Amphibia	4	0
/ Reptilia	5	0
/ Aves	86	0
/ Mammalia	25	1
Totals	840	209

^aThis figure is a minimal one including only differently named higher taxa as a single entry (e.g., a genus may have 30 species, but if these are not identified they are counted as one).

The flora tabulated (see Appendix I) includes 37 trees, 40 composites, 20 grasses, and 7 legumes, but largely ignores the "lower plants" (e.g., algae, fungi, and mosses) which are also well represented on the property. Mapping of the property indicates that more than half the site is in various stages of old-field succession, and that the rest is divided into pine plantations and deciduous broadleaf forest types (mostly oak). Extensive cattail marsh borders the DesPlaines River to the south, and accompanies the lake area and its drainage in the northwest quarter of the property.

The fauna (see Appendix II) are also exceptionally diverse since 674 identified species are included in the checklist, with at least an additional 199 species present in collection but only partially named (protozoans, nematodes, rotifers, and other "lower" animals were seldom collected). The total includes 532 species of insects (327 species of beetles), 86 species of birds, and 25 species of mammals.

Prairie plants are fairly well represented in the Argonne checklist, especially if a broad classification of prairies is used which includes wetland and degraded or pioneer associates. By use of such a scheme, twenty-eight species qualify as prairie plants. These are sometimes found in upland firebreaks or old fields, but most of them are in prairie islands of varying extent on the DesPlaines River flood plain.

Ties of animals to prairies generally are not so specifically documented, but some interesting collections from Argonne included the "prairie pselaphid," Reichenbachia subsimilis Casey (Park et al.*), and the Silphium-restricted chrysomelid, Microrhopala leatula LeConte.

Table II indicates the soil-type amplitude of the present arboreal vegetation and the observed or assumed natural vegetation on these soil types at Argonne. This tabulation is based on the unpublished soil survey of J. B. Fehrenbacher and associates, and the vegetation survey by A. S. Messenger (see Appendix III). This comparison reveals that the white oak-dominated associations do not exist on poorly drained soils, but bur oak-dominated associations definitely do. The presence of red oak-dominated and elm and ash-dominated associations along drainageways leading to the DesPlaines River flood plain on apparent prairie soils may reflect the presence of Brown Forest soils influenced by basiphyllous hardwoods on very basic materials. These soils closely resemble grassland Brunizems. Jack and white pine plantations are located both on soils formerly forested and soils formerly under prairie. At present one cannot tell if these soil differences are related to the variable success of the pines.

* Park, O., Auerbach, S., and Wilson, M., Pselaphid beetles of an Illinois prairie: the fauna, and its relationship to the Prairie Peninsula Hypothesis, Bull. Chicago Acad. Sci. 8, 267-276 (1949); Pselaphid beetles of an Illinois prairie: the population, Ecol. Mono. 23, 1-15 (1953).

TABLE II. Summary of the Major Arboreal Soil-Plant Associations at Argonne National Laboratory

Soil Types	Internal Drainage Class	Natural Vegetation
A. Jack Pine Plantations		
Morley silt loam	Well-drained	Forest
Blount silt loam	Imperfectly drained	Forest
Ashkum silty clay loam	Poorly drained	Prairie
Beecher silt loam	Imperfectly drained	Prairie-Forest Trans.
Peotone silty clay loam	Very poorly drained	Prairie
Sawmill silty clay loam	Poorly drained	Prairie
Elliot silt loam	Imperfectly drained	Prairie
B. Red Pine Plantations		
Morley silt loam	Well-drained	Forest
Blount silt loam	Imperfectly drained	Forest
Beecher silt loam	Imperfectly drained	Prairie-Forest Trans.
Sawmill silty clay loam	Poorly drained	Prairie
C. White Pine Plantations		
Morley silt loam	Well-drained	Forest
Blount silt loam	Imperfectly drained	Forest
Beecher silt loam	Imperfectly drained	Prairie-Forest Trans.
Ashkum silty clay loam	Poorly drained	Prairie
Peotone silty clay loam	Very poorly drained	Prairie
Sawmill silty clay loam	Poorly drained	Prairie
Lorenzo silt loam	Well-drained	Prairie
D. White Oak-dominated Associations		
Morley silt loam	Well-drained	Forest
Blount silt loam	Imperfectly drained	Forest
E. Bur Oak-dominated Associations		
Morley silt loam	Well-drained	Forest
Blount silt loam	Imperfectly drained	Forest
Beecher silt loam	Imperfectly drained	Prairie-Forest Trans.
Sawmill silty clay loam	Poorly drained	Prairie
Peotone silty clay loam	Very poorly drained	Prairie
F. Red Oak-dominated Associations		
Morley silt loam	Well-drained	Forest
Lorenzo silt loam	Well-drained	Prairie
Chatsworth silt loam	Well-drained	Forest
Romeo silt loam	Poorly drained	Prairie
G. Elm and Ash-dominated Associations		
Morley silt loam	Well-drained	Forest
Lorenzo silt loam	Well-drained	Prairie
Lawson silt loam	Imperfectly drained	Prairie

The quantitative survey of old-field plots showed, in addition to an 85% grass cover, 166 forbs per square meter (see Appendix IV). These forbs are primarily composites (66%), crucifers (20%), and legumes (3%). The net weight of a square meter (8 cm deep) was 64.8 kg, with herbs accounting for 1.8%, floor litter for 3%, and subterranean litter and soil for 95.2% of the totals. The free water content varied from 17.5% for subterranean litter to 38.7% for floor litter. The fauna of an average square meter consisted of 27,711 animals, with 88.5% of these in the subterranean and a regular decrease in abundance through floor and herbs to the shrubs (0.03%). The most numerous faunal components were mites (Acari), 59%; springtails (Collembola), 27%; and ants (Formicidae: Hymenoptera), 4.1% of the faunal totals.

The survey also tabulated (see Appendix V) two-dozen prairie remnants in the Chicago area, some of which are apparently good native prairie (e.g., Peacock Prairie), and others of which are abandoned cemeteries (e.g., Vermont Cemetery). Many of these are being threatened with destruction (e.g., O'Hare Prairie). The better of these prairie remnants may serve as seed sources for the Argonne restoration and in future years will be a standard of comparison for the Argonne prairie.

CONCLUSIONS

Some important aspects of the total survey remain incomplete. The major work required includes completion of the winter, spring, and fall records of the biota. It is anticipated that these will be tabulated as a concurrent activity of other projects in the future and that as sufficient information accumulates addenda to this report will be issued.

The survey has established the existence and locations of a rich diversity of plant and animal habitats, and provides a basis for further field study on the Argonne Site. The site has many examples of different plant associations growing on similar soil types as well as similar plant associations growing on dissimilar soil types. Some of these are introduced as, for example, the plantations of jack pines, while others are remnants of forests or fields which have gone unmanaged for periods of 20 years or more. Locations of old fields in various stages of succession were established. The entire site shows evidence of past disturbance, principally from agricultural use, although there are isolated examples of probable climax vegetation types located in remote marshes and wet lands which were not suitable for agricultural exploitation. Many of the deciduous forests appear to have been used as grazed woodlots prior to the establishment of the Laboratory. These have been protected from further use since about 1948. Their ages are not yet known, but it seems certain that they existed long before they became Laboratory property.

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*The Associated Midwest Universities was merged with Argonne Universities Association in 1968.

APPENDIX I

Argonne Flora

This is a checklist of plants found on the grounds of Argonne National Laboratory during the summer of 1967. It is not considered a complete list. The symbols in the table after the common name include the date of flowering, whether plantation or introduced species (pl), prairie species (p), or species which are found in degraded prairies but tend to disappear in climax associations (dp).

Division Pteridophyta

Class Filicinae

Subclass Leptosporangiatae

Order Eufilicales

Family Polypodiaceae

Cystopteris bulbifera (G.) Bulblet fern

Division Spermatophyta

Subdivision Gymnospermae

Order Coniferae

Family Pinaceae

Tsuga canadensis (L.) Carr. Eastern hemlock (pl)

Pinus strobus L. White pine (pl)

P. resinosa Ait. Red pine (pl)

P. banksiana Lamb. Jack pine (pl)

Picea pungens Engelm. Colorado blue spruce (pl)

Subdivision Angiospermae

Class Monocotyledoneae

Order Pandanales

Family Typhaceae

Typha glauca Godr. Cattail

T. latifolia L. Common cattail

Family Sparganiaceae

Sparganium eurycarpum Engelm. Giant bur-reed (7/6)

Order Helobiae (Najadales)

Family Alismaceae

Sagittaria graminea Michx. Grass-leaved arrowhead
(7/13)

Order Glumiflorae (Graminales)

Family Graminae

Bromus racemosus L. Brome grass

Glyceria septentrionalis Hitchc. Floating manna grass

Poa compressa L. Canada blue grass

P. pratensis L. Kentucky blue grass

Phragmites communis Trin. Common reed

Agropyron repens (L.) Beauv. Quack grass

Hordeum jubatum L. Squirrel-tail grass

Elymus virginicus L. Wild rye or lyme grass (p?)

E. canadensis L. Wild rye (dp)

- Agrostis alba L. Redtop
Phleum pratense L. Timothy
Alopecurus sp. Foxtail grass
Spartina pectinata Link Prairie cord grass (p)
Echinochloa crusgalli (L.) Beauv. Barnyard grass
Setaria viridis (L.) Beauv. Green foxtail
Andropogon gerardi Vitman Big bluestem (p)
- Family Cyperaceae
Scirpus fluviatilis (Torr.) Gray River bulrush
Carex spp. Sedges
- Order Liliflorae (Liliales)
- Family Juncaceae
Juncus tenuis Willd. Roadside rush (7/13)
- Family Liliaceae
Allium cernuum Roth Nodding onion (p, 8/10)
Hemerocallis fulva L. Day lily (pl)
Lilium michiganense Farw. Michigan lily (p)
Asparagus officinalis L. Garden asparagus (pl)
Trillium recurvatum Beck Purple trillium (5/9)
Smilax lasioneura Hook Carrion flower (8/7)
- Class Dicotyledoneae
- Subclass Archichlamydeae
- Order Salicales
Family Salicaceae
Salix spp. Willows
Populus alba L. European silver poplar (pl)
P. grandidentata Michx. Big-toothed aspen
P. deltoides Marsh. Eastern cottonwood
- Order Juglandales
Family Juglandaceae
Juglans nigra L. Black walnut
Carya cordiformis (Wang.) K. Koch. Bitternut hickory
C. ovata (Mill.) K. Koch. Shagbark hickory
- Order Fagales
Family Corylaceae
Corylus americana Walt.? Hazelnut
Ostrya virginiana (Mill.) K. Koch. Eastern hophornbeam
Betula papyrifera Marsh. Paper birch (pl?)
Alnus sp. Alder
- Family Fagaceae
Quercus alba L. White oak
Q. macrocarpa Michx. Bur oak
Q. rubra L. Red oak
Q. velutina Lamb. Black oak
Q. imbricaria Michx. Shingle oak
- Order Urticales
Family Ulmaceae
Ulmus fulva Michx. Slippery elm

- Family Moraceae
Maclura pomifera (Raf.) Schneid. Osage-orange (pl)
- Order Polygonales
 Family Polygonaceae
Rumex crispus L. Curly dock (7/13)
R. orbiculatus A. Gray Great water dock
- Order Centrospermae (Caryophyllales)
 Family Portulacaceae
Claytonia virginica L. Spring beauty (4)
- Family Caryophyllaceae
Silene stellata (L.) Ait. Star campion (8/7)
S. virginica L. Firepink (6/10)
- Order Ranales (Ranunculales)
 Family Ranunculaceae
Thalictrum polygamum Muhl. Great meadow rue (6/28)
- Family Berberidaceae
Podophyllum peltatum L. Mayapple (5)
- Family Magnoliaceae
Liriodendron tulipifera L. Tulip tree
- Order Rhoeadales (Papaverales)
 Family Capparidaceae
Polanisia graveoleus Raf. Clammyweed (6/28)
- Order Rosales
 Family Platanaceae
Platanus occidentalis L. Sycamore
- Family Rosaceae
Malus sp. Apple
Crataegus sp. Hawthorne
Fragaria virginiana Duch. Wild strawberry
Potentilla recta L. Rigid potentilla (7/13)
Geum canadense Jacq. White avens (8/2)
G. laciniatum Murr. Swamp geum (p, 6/28)
Agrimonia gryposepala Wallr. Tall agrimony (8/7)
Rosa multiflora Thunb. Japanese or multiflora rose (pl)
Prunus serotina Ehrh. Wild black cherry
P. virginiana L. Common chokecherry
- Family Leguminosae
Baptisia leucantha T.&G. Wild indigo (p, 7/13)
Melilotus alba Desr. White sweet clover (7/20)
Robinia pseudoacacia L. Black locust
Desmodium glutinosum (Muhl.) Wood Showy tick trefoil (8/10)
Lespedeza capitata Michx. Round-headed bush clover (p, 7/13)
Lathyrus latifolius L. Everlasting pea (9/26)
- Order Geraniales
 Family Geraniaceae
Geranium maculatum L. Wild geranium (5)

- Family Euphorbiaceae
Chamaesyce maculata L. Nodding spurge (8/1)
Euphorbia corollata L. Flowering spurge (p, 7/25)
- Order Sapindales
- Family Anacardiaceae
Rhus typhina L. Staghorn sumac
R. radicans L. Poison ivy
- Family Aceraceae
Acer saccharum Marsh. Sugar maple
A. saccharinum L. Silver maple
A. negundo L. Boxelder
- Order Malvales
- Family Tiliaceae
Tilia americana L. Basswood
- Order Parietales (Violales)
- Family Guttiferae (=Hypericaceae)
Hypericum perforatum L. Common St. Johns-wort (8/17)
H. punctatum Lam. Spotted St. Johns-wort (8/8)
- Family Violaceae
Viola spp. Violets (4)
- Order Myrtiflorae (Mytales)
- Family Lythraceae
Lythrum alatum Pursh. Common Loosestrife (p, 6/30)
- Family Onagraceae
Oenothera biennis L. Common evening primrose (8/9)
Gaura biennis L. Common gaura or biennial gaura (8/8)
Circaeaa latifolia Hill Enchanter's nightshade (8/2)
- Family Haloragaceae
Proserpinaca palustris L. Mermaid-weed (7/13)
- Order Umbelliflorae (Umbellales)
- Family Araliaceae
Aralia racemosa L. American spikenard (8/10)
- Family Umbelliferae
Sium suave Walt. Water parsnip (8/10)
Angelica atropurpurea L. Great angelica (6/28)
Pastinaca sativa L. Parsnip (6/28)
Daucus carota L. Queen Anne's lace (7/13)
- Family Cornaceae
Cornus obliqua Raf. Pale dogwood (7/13)
C. racemosa Lam. Gray dogwood (7/13 after flowering)
- Subclass Metachlamydeae
- Order Primulales
- Family Primulaceae
Lysimachia ciliata L. Fringed loosestrife (8/10)
- Order Oleales
- Family Oleaceae
Fraxinus americana L. White ash
F. nigra Marsh. Black ash
F. quadrangulata Michx. Blue ash

Order Contortae (Gentianales)

Family Apocynaceae

Apocynum cannabinum L. Hemp dogbane (7/13)

Family Asclepiadaceae

Asclepias purpurascens L. Purple milkweed*A. incarnata* L. Swamp milkweed (p, 7/25)*A. syriaca* L. Common milkweed (7/13)*A. verticillata* L. Horsetail milkweed (7/20)

Order Tubiflorae (Polemoniales)

Family Convolvulaceae

Convolvulus sp. Bindweed (7/13)*C. americanus* (Sims) Greene American bindweed (8/7)*C. arvensis* L. Field bindweed (8/7)

Family Polemoniaceae

Phlox paniculata L. Garden phlox (9/26)

Family Verbenaceae

Verbena urticifolia L. White vervain (8/7)*V. hastata* L. Blue vervain (7/20)*V. simplex* Lehm. Narrow-leaved vervain (6/28)*V. stricta* Vent. Hoary vervain (7/20)

Family Labiate

Teucrium canadense L. Wood-sage (p, 6/30)*T. occidentale* Gray Hairy wood-sage (8/7)*Scutellaria lateriflora* L. Mad-dog scullcap (8/17)*Nepeta cataria* L. Catnip (7/13)*Prunella vulgaris* L. Carpenter-weed (7/20)*Physostegia virginiana* (L.) Beuth. var. *speciosa* (Sweet)

Gray Showy false dragonhead (p, 8/10)

Leonurus cardiaca L. Motherwort (7/6)*Leonurus marrubiastrum* L. Motherwort (8/10)*Stachys palustris* L. Hedge-nettle (7/5)*Monarda fistulosa* L. Wild bergamot (dp, 7/13)*Pycnanthemum* sp. Narrow-leaved mountain mint (8/9)*Lycopus americanus* Muhl. American water horehound
(p, 8/2)*Mentha canadensis* L. Wild mint (8/10)

Family Solanaceae

Solanum dulcamara L. Deadly nightshade (7/13)*S. carolinense* L. Horse nettle (7/13)*Physalis subglabrata* Mackenz. and Bush Smooth ground-cherry (8/10)*P. lanceolata* Michx. Virginia ground-cherry (7/13)*P. heterophylla* Nees Clammy ground-cherry (8/1)

Family Scrophulariaceae

Verbascum thapsis L. Common mullein (7/13)*Penstemon* sp.*P. calycosus* Small Penstemon (6/28)*Mimulus ringens* L. Square-stemmed monkey flower
(p, 8/10)

Veronicastrum virginicum (L.) Farw. Culver's root
(p, 7/20)

Order Rubiales

Family Caprifoliaceae

Triosteum aurantiacum Bickh. Horse-gentian (8)

Order Campanulatae (Campanulales)

Family Campanulaceae

Specularia perfoliata (L.) A.D.C. (= Triodanis) Venus' looking-glass (6/28)

Campanula americana L. Tall bellflower (7/19)

Lobelia siphilitica L. Blue cardinal flower (p, 8/29)

L. spicata Lam. Spiked lobelia (p, 7/13)

Family Compositae

Vernonia missurica Raf. Ironweed (7/27)

Eupatorium maculatum L. Spotted Joe-pye weed (p, 8/10)

E. perfoliatum L. Boneset (p, 9/14)

E. rugosum Houtt. White snakeroot (8/10)

Liatris aspera Michx. Blazing Star (p, 8/10)

Solidago flexicaulus L. Zig-zag Goldenrod (9/5)

Solidago juncea Ait. Early goldenrod (8/23)

Boltonia latisquama Gray recognita Fern. & Grisc.

False aster (p)

Aster novae-angliae L. New England aster (9/8)

Erigeron annuus (L.) Pers. Whitetop (7/13)

Ambrosia trifida L. Giant ragweed

A. artemisiifolia L. Ragweed

Silphium perfoliatum L. Cup-plant (8/1)

S. terebinthinaceum Jacq. Prairie-dock (p, 8/4)

Heliopsis helianthoides (L.) Sweet Ox-eye (p, 8/1)

Rudbeckia laciniata L. Goldenglow (8/9)

Rudbeckia hirta L. Black-eyed susan (dp)

Helianthus hirsutus trachyphyllus Raf. Rough-leaved sunflower (8/10)

H. strumosus L. Pale-leaved sunflower (8/9)

H. grosseserratus Martens Prairie sunflower (8/9)

Bidens polylepis Blake Beggar-tick (p?, 9/5)

Helenium autumnale L. Sneezeweed (p, 9/5)

Athemis cotula L. Dog-fennel (7/25)

Chrysanthemum leucanthemum L. Ox-eye daisy (7/13)

Senecio pauperculus var. balsamitae Muhl. Golden ragwort (p)

Sonchus uliginosus Bieb. Smooth field sow-thistle (8/2)

S. oleraceus L. Common sow-thistle (8/4)

S. asper (L.) Hill Spiny sow-thistle (8/7)

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APPENDIX II
Argonne Fauna

Because of the limits of time and collection techniques, the faunal checklist which follows must be considered to be incomplete, especially for lower invertebrates and aquatic organisms. Those species which are likely to be prairie forms are indicated with an asterisk (*).

Phylum Protozoa

Class Sarcodina

Order Testacea

Family Diffugiaidae

Diffugia sp.? (Log)

Class Ciliata

Order Holotricha

Family Holophyridae

Ichthyopthirius multifiliis F. (under Centrarchidae epidermis)

Phylum Aschelminthes

Class Nematoda (Field subterranean)

Phylum Annelida

Class Oligochaeta

Order Plesiopora

Family Enchytraeidae

Order Opisthopora

Family Lumbricidae

Phylum Mollusca

Class Gastropoda

Order Pulmonata

Family Pupillidae

Gastrocopta sp.

Family Succineidae

Succinea ovalis (Say) (Field W)

Family Zonitidae

Retinella indentata (Say) (Field)

Zonitoides arboreus (Say) (Field and Forest)

Family Limacidae

Deroceras gracile Raf.? (Forest)

Family Philomycidae

Philomycus carolinianus (Bosc.) (Forest)

Phylum Arthropoda

Class Arachnida

Order Pseudoscorpiones

Order Opiliones

Family Phalangidiidae

Order Acari

Suborder Monostigmata

Family Parasitidae?

- Suborder Trombidiformes
 - Family Trombidiidae
 - Trombidium sp.
- Suborder Sarcoptiformes
 - Family Belidae
 - Family Eremaeidae
 - Family Galumnidae
 - Family Phthiracaridae
- Suborder Ixodidae
 - Family Argasidae
 - Dermacentor variabilis (Say) (Field and Forest)
- Order Araneae
 - Family Attidae
 - Family Clubionidae
 - Family Lycosidae
 - Family Thomisidae
 - Tibellus sp.
 - Xysticus sp.
 - Family Hahniidae
 - Hahnia sp.
- Class Crustacea
 - Order Isopoda
 - Family Porcellionidae
 - Trachelipus rathkei (Brandt)?
 - Order Decapoda
 - Family Astacidae
- Class Diplopoda
 - Family Nemasomidae?
 - Family Polydesmidae
 - Scytonotus granulatus (Say)?
- Class Chilopoda
 - Family Cryptopidae
 - Otocryptops sexspinosa (Say) (Forest)
 - Family Ethopoliidae
 - Bothroplys multidentatus (Newport)? (Log)
 - Family Linotenidae
 - Linotenia chionophila (Wood) (Forest and Field)
 - Family Lithobiidae
 - Lithobius forficatus L.? (Field and Forest)
- Class Insecta
 - Order Collembola
 - Family Neanuridae
 - Paranura sexpunctata colorata Mills?
 - Neanura muscorum Templeton
 - Onychiurus sp.?
 - Family Hypogastruridae
 - Hypogastrura sp.?

- Family Entomobryidae
Orchesella albosa Guthrie
Entomobrya multifasciata (Tullberg)
Willowsia buski (Lubbock)
Lepidocyrtus curvicollis Bourlet
L. cyaneus Tullberg
- Family Isotomidae
Folsomia fimetaria (L.)
Isotomurus palustris (Muller)
Isotoma sp.?
- Family Tomoceridae
Tomocerus flavescens (Tullberg)?
- Family Sminthuridae
Sminthurinus elegans (Fitch)?
- Order Aptera
Family Campodeidae
Campodea sp.?
- Order Thysanura
Family Lepismatidae
Lepisma sp.? (Greenhouse)
- Order Ephemeroidea
Family Caenidae
Caenis sp.
- Order Odonata
Family Libellulidae
Erythemis simplicicollis Say
Perithemus tenera Say
Libellula luctuosa Burm.
L. pulchella Drury
Sympetrum obtrusum Hagen?
- Family Lestidae
Lestes dryas Kirby
L. unguiculatus Hagen?
- Family Coenagrionidae
Argia sp.?
Ischnura verticalis Say
Enallagma hageni Walsh
- Family Agrionidae
Agrion maculatum Beauv.
- Order Blattaria
Family Blattidae
Parcoblatta uhleriana Sauss.?
P. pennsylvanica (DeG.)
- Order Phasmida
Family Phasmidae
Diapheromera femorata (Say)?

Order Orthoptera

Family Acrididae

- Tettigidea lateralis Say (Field)*?
Chloeaaltis conspersa Harris (Goldenrod)*?
Circotettix sp.?
Melanoplus femur-rubrum DeG. (Field)*?
Arphia sulphurea (Fab.) (Field)*?
A. xanthoptera (Germ.) (Field)*?
Dissosteira carolina (L.) (Field)*?
Chorotephaga viridifasciata (Deg.) (Field)*?

Family Gryllidae

- Gryllus assimilis (Fabr.) (Field)
Oecanthus nigricornis F. Walk. (Field)

Family Tettigoniidae

- Ceuthophilus latens Scudder? (Forest)
Ceuthophilus spp. (Forest and Field)
Scuddaria sp.? (Field)

Order Dermaptera

Family Labiidae

- Labia minor L.

Order Corrodentia

Family Psocidae

- Psocus sp.

Order Thysanoptera

Family Thripidae

- Frankliniella tritici Fitch

Family Phloeothripidae

- Bolothrips bicolor Heeger

- Adelothrips sp.

- Elaphrothrips sp.

- Eurythrips ampliventris Hinds

- Lissothrips muscorum Hood

- Haplothrips sp.

- Karnyothrips longiceps Hood

Family Chirothripidae

- Chirothrips manicatus Haliday

Family Idolothripidae

- Actinothrips rufus Gmelin

Order Homoptera

Family Cicadidae

- Magicicada septendecim L.

Family Cercopidae

- Aphrophora quadrinotata Say (Field)

- Lepyronia quadrangularis (Say) (Field)

- Clastoptera proteus var. nigricollis (Field)

Family Membracidae

- Publilia sp. (Field)

<u>Cyrtolobus</u> spp.	
<u>Atymna querci</u> (Fitch)	
<u>Ceresa</u> spp.	(Field)
<u>Stictocephala</u> spp.	(Field)
<u>Campylenchia</u> spp.	(Field)
Family Fulgoridae	
<u>Scolops pungens</u> (Germ.)	(Field)
<u>Ormenis pruinosa</u> (Say)	(Field)
<u>Acanalonia bivittata</u> (Say)	(Field and Forest)
<u>A. conica</u> (Say)	(Field)
<u>Stenocranus</u> sp.?	
Family Cicadellidae	
<u>Dorycephalus platyrhynchus</u> Osb.	(Field)*
<u>Agallia</u> sp.?	
<u>Graphocephala coccinea</u> (Forster)	(Field)
<u>Tylozygus</u> sp.	(Field)
<u>Draeculacephala</u> spp.	(Field)
<u>Penthimia americana</u> Fitch	(Forest and Field)
<u>Aphrodes</u> sp.?	(Field)
<u>Erythroneura</u> spp.?	(Field)
<u>E. tricincta</u> Fitch	
<u>Colladonus clitellarius</u> (Say)	(Field)
<u>Commellus comma</u> (Van D.)	(Field)*?
<u>Latulus sayi</u> (Fitch)	(Field)*?
<u>Graminella nigrifrons</u> (Forbes)	(Field)*?
<u>Prescottia</u> sp.	
<u>Chlorotettix unicolor</u> (Fitch)	(Field)*?
<u>C. tergatus</u> (Fitch)?	(Field)
<u>Cloanthanus frontalis</u> (Van D.)	(Field)
<u>Gyponana</u> sp.	(Field)
<u>Ponana</u> sp.	
<u>Idiocerus pallidus</u> Fitch?	(Marsh)
<u>I. snowi</u> G. & B.	
Family Coccidae	
<u>Orthezia solidaginis</u> (Sanders)?	(Field)
Family Aphididae	(Field)
Order Hemiptera (Heteroptera)	
Family Cydnidae	
<u>Allocoris lateralis</u> Fab.	(Field)
<u>A. pulicaria</u> (Germ.)	(Field)
<u>Sehirus cinctus</u> (Beauv.)	(Field)
<u>Amnestus pallidus</u> Zimmer?	
Family Pentatomidae	
<u>Cosmopepla bimaculata</u> Thom.	(Field)
<u>Trichopepla atricornis</u> Stal.	(Field)
<u>Neottiglossa undata</u> Say	(Field)
<u>Mormidea lugens</u> Fabr.	(Field)

<u>Podisus maculiventris</u>	Say	(Field)
<u>Euchistus variolarius</u>	P. B.	(Field)
<u>Mineus strigipes</u>	H. & S.	(Field)
Family Anthocoridae		
<u>Orius insidiosus</u>	(Say)	(Field)
Family Coreidae		
<u>Euthochtha galeator</u>	Fab.	(Field)
Family Corizidae		
<u>Harmostes reflexulus</u>	Say	(Field)
Family Phymatidae		
<u>Phymata erosa</u>	Var.?	(Field)
Family Neididae		
<u>Jalysus spinosus</u>	Say	(Field)
Family Lygaeidae		
<u>Lygaeus kalmii</u>	Stal.	(Field and Forest)
<u>L. bicrucis</u>	Say	
<u>Myodocha serripes</u>	Oliv.	(Pine)
<u>Hypogeocoris piceus</u>	(Say)	(Field)
<u>Phlegyas abbreviatus</u>	Uhler	(Field)
Family Tingidae		
<u>Melanorhopala clavata</u>	Stal.	(Field)
<u>Corythucha marmorata</u>	Uhler	(Field)
Family Miridae		
<u>Lygus pratensis</u> var. <u>oblineatus</u>	(Say)	(Field)
<u>Neolygus</u> sp.		(Field)
<u>Neurocolpus nubilis</u>	Say	(Field and Marsh)
<u>Adelphocoris rapidus</u>	(Say)	(Field)*?
<u>Horcias dislocatus</u>	(Say)	<u>goniphorus</u> (Say) (Forest)
<u>Polymerus flavocostatus</u>	Knight	(Field)
<u>Poecilocapsus lineatus</u>	(Fabr.)	(Field)
<u>Stenonotus binotatus</u>	Fab.	(Field)
<u>Miris dolabratus</u>	(L.)	(Field)
<u>Trigonotylus tarsalis</u>	(Reut.)	(Marsh)
<u>Stenodema vicinum</u>	(Prov.?)	(Field)*?
<u>Strongylocoris stygicus</u>	Say	(Field)
<u>Sericophanes Heidmanni</u>	Pop.	
<u>Ilnacora</u> sp.?		(Field)
<u>Pilophorus amoenus</u>	Uhler	(Pine?)
<u>Pilophorus juniperi</u>	Knight	(Pine?)
Family Saldidae		
<u>Saldula saltatoria</u>	(L.)	
Family Nabidae		
<u>Nabis roseipennis</u>	Reut.	(Field)
<u>N. ferus</u>	L.	(Field)
Family Reduviidae		
<u>Acholla multispinosa</u>	DeG.	(Field)

Family Nepidae		
<u>Ranatra</u> sp.		(Pond)
Family Gerridae		
<u>Gerrus</u> sp.		(Pond)
<u>G. marginatus</u> Say		(Pond)
Family Belostomatidae		
<u>Belostoma flumineum</u> Say		(Pond)
Family Corixidae		
<u>Hesperocorixa vulgaris</u> (Hungf.)?		(Pond)
<u>Sigara alternata</u> (Say)?		
<u>Trichocorixa naias</u> (Kirk)?		
Family Notonectidae		
<u>Notonecta irrorata</u> Uhler		(Pond)
<u>N. undulata</u> Say		(Pond)
Order Coleoptera		
Family Cicindelidae		
<u>Cicindela sexguttata</u> Fab.		(Forest)
<u>C. Punctulata</u> Oliv.		(Field)
Family Carabidae		
<u>Pasimachus</u> sp.		
<u>Clivina impressifrons</u> LeConte		
<u>C. bipustulata</u> F.		
<u>Bembidion</u> spp.		
<u>Tachys</u> spp.		
<u>Poecilus lucublandus</u> Say		(Forest)
<u>Pterostichine</u> spp.		
<u>Harpalus caliginosus</u> (Fab.)		
<u>Agonoderus</u> spp.		
<u>Harpaline</u> spp.		
<u>Badister neopulchellus</u> Lth.		(Marsh)
<u>Dicaelus politus</u> Dej.		(Forest?)
<u>Chlaenius platyderus</u> Chd.		(Forest?)
<u>C. tricolor</u> Dej.		
<u>Agonine</u> spp.		
<u>Amarine</u> spp.		
<u>Lebia atriventris</u> Say		
<u>L. viridis</u> Say		(Field)
<u>L. pumila</u> Dej.?		(Field)
<u>L. scapularis</u> Dej.		
<u>L. viridipennis</u> Dej.		(Field?)
<u>Callida punctata</u> LeConte		(Field)
Family Haliplidae		
<u>Peltodytes edentulus</u> (LeConte) (Pond)		
Family Dytiscidae		
<u>Hygrotus impressopunctatus</u> (Sch.)		(Pond)
<u>H. sayi</u> Balfour-Brown		(Pond)
<u>Agabus disintegratus</u> (Cr.)		(Pond)

<u>Coptotomus interrogatus</u>	Fab.	(Pond)
<u>Dytiscus hybridus</u>	Aube	(Pond)
Family Gyrinidae		
<u>Dineutus assimilis</u>	Aubé	(Pond)
<u>Gyrinus minutus</u>	Fabr.	(Pond)
Family Hydrophilidae		
<u>Tropisternus lateralis nimbatus</u>	(Say)	(Pond)
<u>Berosus infuscatus</u>	LeConte	
<u>B. striatus</u>	Say	(Pond)
<u>Hydrobius fuscipes</u>	L.	
<u>Paracymus subcupreus</u>	(Say)	
<u>Enochrus ochraceus</u>	(Melsh.)	(Pond)
<u>E. perplexus</u>	(LeConte)	
<u>E. cinctus</u>	Say	
<u>E. hamiltoni</u>	(Horn)	
<u>Cymbiodyta lacustris</u>	(LeConte)	
<u>Sphaeridium bipustulum</u>	Fab.	(Manure)
<u>S. lunatum</u>	Fab.	(Manure)
<u>Oosternum pubescens</u>	LeConte	(Carrion)
<u>Cercyon praetextatus</u>	(Say)	
Family Staphylinidae		
<u>Proteinus</u> sp.		(Carrion)
<u>Megarthrus</u> sp.		
<u>Carpelimus</u> spp.		
<u>Oxytelus</u> spp.		
<u>Thoracophorus costalus</u>	(Erich.)	(Log)
<u>Lithocharis</u> sp.		
<u>Rugilus</u> sp.		
<u>Lathrobium</u> spp.		
<u>Homaeotarsus</u> sp.		
<u>Paederus</u> sp.		
<u>Stenistoderus</u> sp.		
<u>Staphylinus maxillosus</u>	L.	(Carrion)
<u>Philonthus cyanipennis</u>	Fabr.	(Carrion)
<u>Philonthus</u> spp.		(Carrion)
<u>Ontholestes cingulatus</u>	(Grav.)	(Carrion)
<u>Lordithon anticus</u>	Horn	(Carrion)
<u>L. cinctus</u>	(Grav.)	(Carrion)
<u>Bolitobius</u> spp.		(Carrion)
<u>Bryophorus</u> sp.		
<u>Tachinus luridus</u>	Er.?	(Carrion)
<u>T. angustatus</u>	Horn?	(Carrion)
<u>Tachyporus</u> spp.		(Carrion)
<u>Atheta</u> spp.		(Carrion, Forest)
<u>Aleochara</u> sp.		(Carrion)
<u>Aleochara lata</u>	Grav.	(Carrion)

Family Pselaphidae		
<u>Rhexidius canaliculatus</u> (LeConte)	(Log)	
<u>Rhexius insculptus</u> LeConte		
<u>Pycnolectus congener</u> (Casey)	(Forest)	
<u>Melba</u> spp.	(Field, Forest, and Pine)	
<u>Reichenbachia</u> sp.		
<u>Reichenbachia subsimilis</u> Casey	(Field, Pine)*	
<u>Pilopius</u> sp.	(Field, Forest, and Pine)	
Family Silphidae		
<u>Silpha americana</u> L.	(Carrion)	
<u>S. aequalis</u> Fabr.	(Carrion)	
<u>S. Novaboracensis</u> Forst.	(Carrion)	
<u>Nicrophorus orbicollis</u> Say	(Carrion)	
<u>N. pustulatus</u> Hersch.	(Carrion)	
<u>N. vespilloides defoiens</u> Mann.	(Carrion)	
<u>N. tomentosus</u> Web.	(Carrion)	
Family Leptodiridae		
<u>Nemadus</u> sp.	(Carrion)	
<u>Catops</u> spp.	(Carrion)	
<u>Ptomaphagus consobrinus</u> (LeConte)	(Carrion)	
<u>Prionochaeta opaca</u> (Say)	(Carrion)	
Family Leiiodidae		
<u>Colenis impunctata</u> LeConte	(Carrion)	
Family Ptiliidae		
<u>Pteryx</u> spp.	(Forest)	
<u>Micridium</u> sp.	(Log)	
<u>Ptinella</u> sp.	(Log)	
<u>Allopteryx daggyi</u> Dybas	(Forest)	
<u>Acrotrichine</u> sp.	(Forest)	
<u>Acrotrichis</u> spp.	(Forest and Pine)	
<u>Ctenopteryx</u> spp.	(Forest and Pine)	
Family Scydmaenidae		
<u>Euconnus affinis</u> Casey?	(Log)	
<u>Pycnophus rarus</u> LeConte	(Under rock)	
<u>Napochus fulvum</u> LeConte	(Field)	
<u>N. trinifer</u> Casey	(Forest, Field, and Pine)	
<u>Napochus</u> spp.	(Forest, Field, Pine and Marsh)	
<u>Stenichnus perforatus</u> Schaum	(Field and Pine)	
<u>Opresus misellus</u> LeConte	(Log)	
<u>Ascydmus tener</u> Casey	(Log)	
Family Scaphidiidae		
<u>Baeocera picea</u> Casey?	(Log)	
Family Histeridae		
<u>Acritus exiguus</u> Erich.	(Log)	
<u>Aeletes politus</u> (LeConte)	(Log)	

<u>Saprinus lugens</u> Erich.	(Carrion)
<u>Geomysaprinus posthumus</u> Mars.	(Carrion)
<u>Euspilotus assimilis</u> Payk.	(Carrion)
<u>E. conformis</u> LeConte	(Carrion)
<u>Platylomalus aequalis</u> Say	(Log)
<u>Margarinotus stygicus</u> LeConte	(Carrion)
<u>M. cadaverinus</u> Hoffm.	(Carrion)
<u>M. hudsonicus</u> Casey	(Carrion)
<u>M. lecontei</u> Wenzel	(Carrion)
<u>Hister abbreviatus</u> Fabr.	(Carrion)
<u>Phelister subrotundus</u> Say	(Carrion)
Family Lucanidae	
<u>Pseudolucanus capreolus</u> (L.)	
<u>Ceruchus piceus</u> (Web.)	(Log)
Family Passalidae	
<u>Popilius disjunctus</u> (Illiger)	(Log)
Family Scarabaeidae	
<u>Ateuchus histeroides</u> (Web.)	(Carrion)
<u>Onthophagus hecate</u> Panz.	(Carrion)
<u>O. striatulus</u> (Beauv.)	(Carrion)
<u>O. orpheus</u> orpheus (Panz.)	(Mouse nest)
<u>O. o. pseudorpheus</u> H. & C.	(Carrion)
<u>O. o. canadensis</u> (Fabr.)	(Carrion)
<u>Aphodius ruricola</u> Melsh.	(Carrion)
<u>A. granarius</u> (L.)	
<u>Ataenius strigatus</u> (Say)	
<u>A. spretulus</u> (Hald.)	
<u>Geotrupes splendidus</u> (Fabr.)	(Carrion)
<u>Trox unistriatus</u> Beauv.	(Carrion)
<u>T. variolatus</u> Melsh.	(Carrion)
<u>T. hamatus</u> Rob.	(Carrion)
<u>Serica</u> sp.	
<u>S. mystaca</u> Dawson	(Forest)
<u>S. sponsa</u> Dawson	(Forest)
<u>Phyllophaga balia</u> (Say)	(Forest)
<u>P. fusca</u> (Froelich)	
<u>P. ulkei</u> Smith	(Forest)
<u>P. anxia</u> (LeConte)	(Forest)
<u>P. rugosa</u> (Melsh.)	
<u>P. hirticula</u> (Knoch.)	
<u>P. futilis</u> (LeConte)	(Field?)
<u>Pelidnota punctata</u> (L.)	
<u>Cyclocephala immaculata</u> (Oliv.)	
Family Helodidae	
<u>Cyphon ruficollis</u> Say	
<u>Prionocyphon</u> sp.?	

Family Heteroceridae

Neoheterocerus sp.*Lapsus tristis* (Mann.)*Damphus undatus* Melsh.

Family Rhipiceridae

Sandalus niger Knoch.?

Family Buprestidae

Chrysobothris mali Horn*Agrilus bilineatus* (Web.)

(Field)

A. ruficollis (Fab.)

(Field)

A. egenus Gory

(Field)

A. arcuatus (Say)

(Forest)

A. obsoletoguttatus Gory

(Field)

Agrilus sp.

(Field)

Pachyschelus laevigatus (Say)

(Field)

Brachys aerosus Melsh.

(Forest)

Family Elateridae

Aeolus elegans (Fabr.)*Aeolus amabilis* (LeConte)?*Athous cucullatus* (Say)*Hemicrepidius memnonius* (Hbst.)*H. brevicollis* Cand.?

(Field)

H. decoloratus (Say)?

(Field and Forest)

Agriotes pubescens Melsh.

(Forest)

Oxygonus obesus (Say)

(Forest)

Melanotus communis Gyll.

(Forest)

M. fissilis Say

(Field)

M. debilis Blatchley

(Field)

M. depressus Melsh.

(Field)

M. verberans LeConte?

(Field)

Family Throscidae

Trixagus chevrolati Bonv.

Family Eucnemidae

Stethon pectorosus LeConte (Log)*Fornax orchesides* Newm.?

Family Phengodidae

Phengodes fusciceps LeConte (Field)

Family Cantharidae

Chauliognathus pennsylvanicus

(Field)

DeG.

(Field)*?

C. marginatus Fab.

(Field)

Podabrus rugosulus LeConte

(Field)

P. modestus Say

(Field)

P. m. Say var. flavicollis LeC.

(Field)

P. tomentosus Say

(Field)

Cantharis carolinus Fab.

(Field)

<u>C. rectus</u> Melsh.?	(Field)
<u>C. bilineatus</u> Say	(Field)
<u>Polemius laticornis</u> Say	(Field)
Family Photuridae (Lampyridae)	
<u>Lucidota atra</u> Fab.	(Field)
<u>Pyropyga indicta</u> LeConte	(Field and Marsh)
<u>P. nigricans</u> Say	(Field)
<u>P. decipiens</u> Harris	(Field)
<u>Photinus marginellus</u> LeConte	(Field)
<u>P. pyralis</u> L.	(Field)
<u>Photuris pensylvanica</u> DeG.	(Field)
Family Dermestidae	
<u>Dermestes caninus</u> Germ.	(Carrion)
<u>Cryptorhopalum haemorrhoidale</u> LeC.?	(Field)
Family Anobiidae	
<u>Hadrobregmus pusillus</u> Fall?	
<u>Eutylistus intermedius</u> LeConte?	(Field)
<u>Caenocera oculata</u> Say	(Forest?)
Family Oستomidae	
<u>Tenebroides dubia</u> (Melsh.)?	(Log)
Family Cleridae	
<u>Phyllobaenus verticalis</u> Say	(Field?)
<u>P. pallipennis</u> (Say)	(Forest)
<u>Isohydnocera curtipennis</u> Newman	(Field)
<u>I. tabida</u> LeConte	(Field)
<u>Placopterus thoracicicus</u> Oliv.	(Field)
<u>Enoclerus rosmarinus</u> Say	(Field)
<u>Trichodes nuttalli</u> Kby.	(Field)
<u>Chariessa pilosa</u> Forst.	(Field?)
<u>Orthopleura damicornis</u> Fabr.	
Family Melyridae	
<u>Collops quadrimaculatus</u> Fab.	(Field)
Family Meloidae	
<u>Epicauta pennsylvanica</u> (DeG.)	(Field)
<u>E. pestifera</u> Werner	(Field)
Family Mordellidae	
<u>Mordella octopunctata</u> Fab.	(Field)*
<u>M. marginata</u> Melsh.	(Field and Forest)*?
<u>Tomoxia serval</u> (Say)	
<u>Mordellistena</u> spp.	(Field and Marsh)
<u>M. cervicalis</u> LeConte	(Field)
<u>M. morula</u> LeConte?	(Field)
Family Tenebrionidae	
<u>Platydemia micans</u> Zimm.	
<u>Meracantha contracta</u> (Beauv.)	(Log)
Family Lagriidae	
<u>Statira gagatina</u> Melsh.	(Forest and Field?)

Family Alleculidae		
<u>Mycetochara foveata</u> LeConte	(Log)	
Family Pyrochroidae	(Log)	
Family Melandryidae		
<u>Penthe obliquata</u> (Fab.)	(Log)	
<u>Eustrophinus bicolor</u> (F.)	(Log)	
Family Pedilidae		
<u>Pedilus labiatus</u> (Say)	(Field)	
Family Anthicidae		
<u>Malporus cinctus</u> Say	(Field?)	
<u>Lappus obscurus</u> Laf.	(Field?)	
<u>L. sturmii</u> Laf.	(Field)	
<u>Anthicus cervinus</u> Laf.		
Family Nitidulidae		
<u>Carpophilus dimidiatus</u> Fab.?	(Field?)	
<u>C. brachypterus</u> Say		
<u>Epuraea helvola</u> Erich.	(Fungi, Oak and Pine)	
<u>E. rufa</u> (Say)		
<u>E. ovata</u> Horn?		
<u>Stelidota geminata</u> Say		
<u>S. octomaculata</u> Say		
<u>Omosita colon</u> (L.)	(Carriion)	
<u>Meligethes</u> spp.?	(Field?)	
<u>Glischrochilus fasciatus</u> (Oliv.)		
Family Rhizophagidae		
<u>Monotoma</u> sp.	(Log)	
Family Cucujidae		
<u>Silvanus imbellis</u> LeConte	(Log)	
<u>Laemophloeus biguttatus</u> (Say)		
<u>Uleiota dubius</u> (F.)	(Log)	
<u>Telephanus velox</u> Hald.		
Family Cryptophagidae		
<u>Toramus pulchellus</u> LeConte		
<u>Cryptophagus croceus</u> Zimm.?		
<u>Henoticus serratus</u> Gyll.	(Fungi in Forest)	
<u>Anchicera ephippiata</u> Zimm.		
<u>A. gonodera</u> Casey?		
Family Languriidae		
<u>Languria mozardi</u> Latr.	(Field)	
<u>L. angustata</u> Beauv. var. <u>uhleri</u>	Horn (Field)	
<u>Acropteroxys gracilis</u> Newn.	(Field)	
Family Endomychidae		
<u>Aphorista vittata</u> Fabr.	(Fungi in Forest)	
<u>Endomychus biguttatus</u> Say		
Family Coccinellidae		
<u>Hyperaspis signata</u> (Oliv.)	(Field)	

<u>Brachyacantha ursina</u> (Fab.)	(Field)
<u>Scymnus americanus</u> Muls.	(Field)
<u>Psyllobora viginti-maculata</u> (Say)	(Field?)
<u>Ceratomegilla fuscalabris</u> (Muls.)	(Field?)
<u>Hippodamia tredecimpunctata</u> (L.)	(Field?)
<u>H. parenthesis</u> (Say)	(Field)
<u>H. glacialis</u> (Fab.)	(Field)
<u>H. convergens</u> (Guer.)	(Field and Forest)
<u>Coccinella transversoguttata</u> Fald.	
<u>Adalia bipunctata</u> (L.)	(Log)
<u>Mulsantina picta</u> (Rand)	(Field)*?
<u>Cyclonedra sanguinea</u> (L.)	(Field and Forest)
Family Erotylidae	
<u>Tritoma humeralis</u> Fabr.	(Field?)
Family Phalacridae	
<u>Phalacrus</u> sp.	(Field)
<u>Olibrus</u> sp.	(Field)
<u>Stilbus apicalis</u> Melsh.	
<u>Stilbus</u> spp.	(Field)
Family Cisidae	
<u>Cis</u> sp.?	(Log)
Family Orthoperidae	
<u>Orthoperus glaber</u> LeConte?	(Field?)
<u>Sericoderus</u> sp.	(Field)
Family Lathridiidae	
<u>Melanopthalma longipennis</u> LeConte?	
<u>M. cavicollis</u> Mann.	(Forest and Pine)
<u>M. distinguenda</u> Com.	
Family Colydiidae	
<u>Cerylon castaneum</u> Say	(Log)
<u>Philothermus glabriculus</u> LeConte	(Log)
Family Mycetophagidae	
<u>Mycetophagus</u> sp.	(Field?)
<u>Typhaea stercorea</u> L.?	
<u>Litargus balteatus</u> LeConte	
Family Cerambycidae	
<u>Parandra brunnea</u> (Fab.)	(Log)
<u>Strangalina famelica</u> (Newn.) var. <u>solitaria</u> (Hald.)	(Field)
<u>Batyleoma suturale</u> (Say)	(Field)*?
<u>Xylotrechus colonus</u> (Fabr.)	
<u>Euderces picipes</u> (Fabr.)	
<u>Monochamus notatus</u> (Drury)	
<u>Lepturges querki</u> Fitch	(Forest?)
<u>L. signatus</u> LeConti	(Forest?)
<u>Dectes spinosus</u> Say	(Field)
<u>Saperda vestita</u> Say	
<u>Eutetrapha tridentata</u> Oliv. var. <u>trifasciata</u> Casey	

<u>Oberea tripunctata</u> Swederus	(Field)
<u>Tetraopes tetrophthalmus</u> (Forst)	(Field)
Family Chrysomelidae	
<u>Crioceris asparagi</u> (L.)	(Field, on Asparagus)
<u>C. duodecimpunctata</u> (L.)	(Field, on Asparagus)
<u>Lema collaris</u> Say	(Field)
<u>L. Trilineata</u> (Oliv.)	(Field)
<u>Anomoea laticlavia</u> Forst.	(Field)*
<u>Coscinoptera dominicana</u> Fab.	(Field)*?
<u>Babia quadriguttata</u> Oliv.	(Field)*
<u>Pachybrachis sticticus</u> Blatch.?	(Field)
<u>Lexiphanes saponatus</u> (Fabr.)	(Field)
<u>Cryptocephalus mutabilis</u> Melsh.	(Field)*?
<u>Exema canadensis</u> Pierce	(Field)
<u>E. dispar</u> Lacord	(Field)
<u>Nodonota tristis</u> (Oliv.)	(Field)
<u>N. puncticollis</u> (Say)	(Field)
<u>Graphops pubescens</u> (Melsh.)	(Field)
<u>Fidia longipes</u> Melsh.	(Field)
<u>Paria fragariae</u> Wilcox	(Field)
<u>Chrysochus auratus</u> (Fab.)	(Field)
<u>Labidomera clivicollis</u> Kirby	(Field and Marsh)
<u>Trirhabda</u> sp.	(Field)
<u>Pyrrhalta americana</u> (Fab.)	(Field)
<u>P. sexvittata</u> (LeConte)	(Field)
<u>P. conferta</u> (LeConte)	(Field)
<u>Diabrotica duodecimpunctata</u> Oliv. var. <u>howardi</u> Barber	(Field)
<u>D. longicornis</u> Oliv.	(Field)
<u>Acalymma vittata</u> (Fabr.)	
<u>Altica litigata</u> Fall?	
<u>Crepidodera nana</u> (Say)	(Field and Marsh)
<u>C. violacea</u> Melsh.	(Field and Forest)
<u>Epitrix fuscula</u> Crotch.	(Field)
<u>E. cucumeris</u> (Harris)	(Field)
<u>E. hirtipennis</u> (Melsh.)	(Field)
<u>Orthaltica copalina</u> Fabr.	(Field?)
<u>Chaetocnema confinis</u> (Crotch.)	(Field)
<u>Systema hudsonias</u> (Forst.)	(Field)
<u>S. blanda</u> Melsh.	(Field)
<u>Longitarsus acutipennis</u> Blatch.?	(Field)
<u>Phyllotreta lewisii</u> (Crotch)?	(Field?)
<u>P. striolata</u> (Fab.)	(Field)
<u>Anoplitis inaequalis</u> (Web.)	(Field)
<u>Xenochalepus horni</u> Smith	(Field)
<u>Microrhopala leatula</u> LeConte	(Field)*
<u>M. vittata</u> Fabr.	(Field and Marsh)

<u>M. xerene</u> Newn.	(Field)
<u>Agroiconata bivittata</u> (Say)	(Field)
<u>Delyoala guttata</u> Oliv.	(Field)
<u>Metriona bicolor</u> Fabr.	(Field)
<u>M. purpurata</u> Boh.	(Field?)
Family Anthribidae	
<u>Trigonorhinus sticticus</u> (Boh.)	(Field)
Family Curculionidae	
<u>Haplorrhynchites aeneus</u> Boh.	(Field)
<u>Apion</u> spp.	(Field)
<u>Phyxelis rigidus</u> Say	(Carrion)
<u>Calomycterus setarius</u> Roe.	(Field)
<u>Pandeleteius hilaris</u> (Hbst.)	*?
<u>Barypeithes pellucidus</u> Boh.	(Carrion?)
<u>Brachyrhinus ovatus</u> (L.)	(Field)
<u>Cercopeus chisaius</u> Sleeper	(Forest)
<u>Sitona cylindricollis</u> Fahrs.	(Field)
<u>Hypera punctata</u> (F.)	(Field)
<u>Hyperodes</u> spp.	(Field?)
<u>Notaris puncticollis</u> LeConte	(Field)
<u>Smicronyx squalidus</u> Casey	(Field)
<u>S. tesselatus</u> Dtz.	
<u>S. sculpticollis</u> Casey	
<u>S. humilis</u> (Dtz.)	(Field)
<u>S. interruptus</u> Blatch.	
<u>Bagous mammillatus</u> Say	
<u>Tychius stephensi</u> Schoen.	(Field)*?
<u>Miccotrogus picirostris</u> (F.)	(Field)
<u>Anthonomus</u> sp.	(Field)
<u>Gymnetron teturum</u> (F.)	(Field)
<u>Lixus fimbriolatus</u> Boh.	(Field)
<u>Baris umbilicata</u> LeConte	(Field)
<u>Baris</u> spp.	(Field)
<u>Centrinites strigicollis</u> Casey	(Field)
<u>Cylindrocopturus</u> sp.	(Field?)
<u>Coelioides flavicaudis</u> Boh.	(Field?)
<u>Ceutorhynchus</u> sp.	(Field)
<u>C. erysimi</u> (F.)	(Field)
<u>Conotrachelus leucophaeatus</u> Fahr.	(Field?)
<u>C. cribricollis</u> (Say)?	
<u>Rhyssematus lineaticollis</u> Say	(Field)
<u>R. aequalis</u> Horn	(Field)
<u>Tyloderma foveolata</u> (Say)	(Field)
<u>T. aerea</u> (Say)?	
<u>Cryptorhynchus</u> sp.	(Forest)
<u>Dryophthorus americanus</u> Bedel	(Forest)
<u>Sphenophorus</u> spp.	(Field)

Family Scolytidae		
<u>Crypturgus pusillus</u> Gyll.?		(Pine?)
Order Neuroptera		
Family Chrysopidae		
<u>Chrysopa oculata</u> Say?		(Field and Marsh)
Order Trichoptera		
Family Hydropsychidae?		
Order Lepidoptera		
Family Papilionidae		
<u>Papilio glaucus</u> L.		(Field?)
<u>P. polyxenes</u> Fab.		(Field)
Family Pieridae		
<u>Colias philodice</u> Godart		(Field)
<u>Pieris rapae</u> L.		(Field)
Family Nymphalidae		
<u>Danaus plexippus</u> (L.)		(Field)
<u>Lethe portlandia</u> Fab.		(Field?)
<u>Euptychia cymela</u> Cramer		(Marsh)
<u>Cercyonis pegala</u> Fab.		(Field and Marsh)
<u>Speyeria cybele</u> Fab.		(Field)
<u>Phycicodes tharos</u> Drury		(Field)
<u>Nymphalis antiopa</u> (L.)		(Forest)
<u>Vanessa atalanta</u> (L.)		(Forest?)
<u>Limenitis archippus</u> Cramer		(Field?)
<u>L. astyanax</u> Fabr.		
Family Lycaenidae		
<u>Chrysophanus titus</u> Fab.		(Field)
<u>Satyrium acadica</u> Edwards		(Field?)
<u>Lycaena phleas</u> L.		(Field)
<u>Everes comyntas</u> Godart		(Field)
<u>Lycaeopsis argiolus</u> L.?		(Field)*?
Family Hesperiidae		
<u>Epargyreus clarus</u> Cramer		(Field)
<u>Erynnis lucilius</u> Scudder and Burgess?		(Field)
<u>Atryone logan</u> Edwards		(Field)
<u>Polites peckius</u> Kirby		(Field)
<u>Adopaea lineola</u> Ochs.?		(Field and Forest)
Family Sphingidae		
<u>Calasymbolus myops</u> Abbot and Smith		
Family Saturniidae		
<u>Automeris io</u> (Fabricius)		
Family Citheroniidae		
<u>Basilona imperialis</u> Drury		
Family Euchromiidae		
<u>Scepsis fulvicollis</u> (Hubner)		(Field and Marsh)
Family Arctiidae		
<u>Haploa</u> sp.		(Field)
<u>Phragmatobia fuliginosa</u> L.		

Family Agaristidae		
<u>Alypia octomaculata</u> Fabr.		(Field)
Family Noctuidae		
<u>Lucania</u> sp.		
<u>L. unipuncta</u> Haworth		(Field)
<u>Cosmia canescens</u> Behr.		
<u>Caenurgina crassicula</u> Haworth		(Field)
Family Pyralidae		
<u>Crambus</u> sp.		(Field)
Order Diptera		
Family Culicidae		
<u>Aedes vexans</u> (Meigen)		
Family Dixidae		
<u>Dixa</u> sp.		(Field)
Family Ceratopogonidae		
Family Chironomidae		
Family Mycetophilidae		
Family Cecidomyiidae		
Family Stratiomyidae		
<u>Nemotelus</u> sp.		(Field)
Family Tabanidae		
<u>Tabanus trimaculatus</u> P. de B.		(Field and Marsh)
<u>T. marginalis</u> Fab.		(Field)
<u>T. punctifer</u> O.S.		
<u>T. sulcifrons</u> Macq.		(Field)
<u>Hybomitra lasiophthalmus</u> Wied.		(Field)
<u>Chrysops niger</u> Mieg.?		(Field)
<u>C. wiedemanni</u> Krober		(Marsh)
<u>C. vittatus</u> Wied.		(Marsh)
<u>C. callida</u> O.S.		(Field)
Family Rhagionidae		
<u>Xylomyia</u> sp.		(Field?)
Family Asilidae		(Field)
Family Bombyliidae		
<u>Villa</u> spp.		(Field)
<u>Bombylius validus</u> Loew		(Field)
Family Empididae		
Family Dolichopodidae		
<u>Dolichopus</u> sp.		(Field?)
Family Phoridae		(Carrion)
Family Syrphidae		
<u>Mesograpta marginata</u> (Say)		(Field)
<u>Helophilus fasciatus</u> Walker		(Field)
<u>Microdon ocellaris</u> Curran		(Field)
Family Conopidae		
Family Micropezidae		

Family Otitidae		
<u>Chaetopsis fulvifrons</u> (Macq.)		
<u>Herina</u> sp.		
<u>Tetanops luridipennis</u> Loew.	(Field)	
<u>Straussia longipennis</u>	(Field)	
Family Tephritidae (=Trypetidae)		
<u>Paracantha culta</u> (Wied.)	(Field)	
<u>Eurosta bella</u> Loew.	(Field)	
<u>E. festiva</u> Loew.	(Field)	
Family Sepsidae		
<u>Themira putris</u> (L.)		
<u>Sepsis punctum</u> (Fabr.)	(Carrion)	
<u>S. neocynipsea</u> M. & S.		
<u>Sepsis</u> spp.	(Carrion)	
Family Sciomyzidae		
<u>Dictya</u> sp.	(Field)	
Family Lauxaniidae		
<u>Camptoprosopella</u> sp.		
Family Piophilidae		(Carrion)
Family Sphaeroceridae		
<u>Leptocera</u> spp.	(Carrion)	
Family Milichidae		(Field)
Family Ephydriidae		
Family Drosophilidae		
Family Chloropidae		
Family Anthomyiidae		
<u>Hylemya platura</u> (Meigen)	(Field and Forest, Carrion?)	
Family Muscidae		
<u>Muscina assimilis</u> (Fallen)	(Carrion)	
<u>Ophyra</u> sp.	(Carrion)	
<u>Fannia</u> spp.	(Carrion)	
Family Calliphoridae		
<u>Pollenia rufis</u>	(Field and Forest, Carrion?)	
<u>Calliphora</u> spp.	(Carrion)	
<u>Eucalliphora</u> spp.?	(Carrion in Forests)	
<u>Cynomopsis</u> sp.?	(Field)	
<u>Lucilia</u> spp.	(Carrion)	
Family Sarcophagidae		
<u>Sarcophaga bullata</u> Parker?	(Carrion)	
<u>Ravinia</u> sp.?	(Field and Forest, Carrion?)	
Family Tachinidae		
<u>Ocyptera carolinae</u> Desvoidy	(Field)	
Order Hymenoptera		
Family Braconidae		
<u>Meteorus</u> sp.	(Field)	
<u>M. communis</u> (Cress.)		

<u>Macrocentrus crambi</u> (Ashm.)	
<u>Heliconidea</u> sp.	(Field)
<u>Blacus</u> spp.	
<u>Agathis simillima</u> (Cress.)	(Field)
<u>Ascogaster</u> sp.	(Field)
<u>Alysia</u> sp.	
<u>Aphaeretes pallipes</u> (Say)	(Forest)
<u>Bracon</u> sp.	(Field)
<u>Rogas</u> sp.	
<u>R. abdominalis</u> (Cress.)	
<u>R. terminalis</u> (Cress.)	
Family Ichneumonidae	
<u>Netelia</u> spp.	
<u>Tryphon seminger</u> Cress.	(Field)
<u>Gelis</u> sp.	
<u>Cryptine</u> spp.	(Carrion?)
<u>Ichneumon</u> sp.	(Field)
<u>Lissonotine</u> spp.	
<u>Ophion</u> sp.	
<u>Aphanistes</u> sp.	(Field)
<u>Aptesus</u> sp.?	(Field)
<u>Atractodes</u> spp.	(Carrion in Forests)
<u>Campoletis</u> sp.	(Field)
<u>Campoplex</u> sp.	(Field)
<u>Scambus</u> sp.	(Field)
<u>Temelucha</u> sp.	
<u>Trychosis</u> sp.	(Field)
Family Perilampidae	
<u>Perilampus</u> sp.	(Field)
Family Torymidae	
Family Pteromalidae	
Family Eurytomidae	(Field)
Family Chalcididae	
<u>Spilochalcis</u> sp.	(Field or Marsh)
Family Leucospidae	
<u>Leucospis</u> sp.	(Field)
Family Cynipidae	
Family Evaniidae	
Family Gasteruptiidae	
<u>Gasteruption</u> sp.	(Field)
Family Proctotrupidae	(Carrion)
Family Scelionidae	
Family Diapriidae	
Family Platygasteridae	
Family Dryinidae	(Field)
Family Bethylidae	
Family Tiphidae	
<u>Myzinum</u> sp.	(Field)

Family Mutilidae		
<u>Dasymutilla vesta</u> (Cress.)		(Field)
Family Pompilidae		
<u>Priocnemoides unifasciatus</u> (Say)	(Field)	
<u>Pompilid wasp</u> spp.	(Field and Forest)	
Family Sphecidae		
<u>Sphex pennsylvanicus</u> L.	(Field)	
Family Anthophoridae		
<u>Ceratina dupla</u> Say	(Field)	
<u>C. metallica</u> Sm.	(Field)	
<u>Epeolus</u> spp.	(Field)	
Family Colletidae		
<u>Hylaeus</u> spp.	(Field)	
<u>Colletes</u> sp.	(Field)	
Family Andrenidae		
<u>Andrena rugosa</u> Robertson	(Field)	
<u>Calliopsis andreniformis</u> Sm.	(Field)	
Family Halictidae		
<u>Halictus confusus</u> Sm.	(Field)	
<u>Halictus ligatus</u> Say	(Field)	
<u>Halictus rubicundus</u> Christ	(Field)	
<u>Dialictus anomalus</u> Robt.	(Field)	
<u>Dialictus</u> spp.	(Field)	
<u>Evylaeus</u> sp.	(Field)	
Family Megachilidae		
<u>Megachile</u> sp.	(Carriion?, Forests)	
<u>Stelis</u> sp.	(Field)	
<u>Hoplitis producta</u> Cresson	(Field)	
Family Apidae		
<u>Bombus fervidus</u> Fab.	(Field)	
<u>B. vagans</u> Sm.	(Field)	
<u>Apis mellifera</u> L.	(Field)	
Family Formicidae		
<u>Ponera</u> sp.	(Field, Forest and Pine)	
<u>Prenolepis imparis</u> (Say)	(Field)	
<u>Formica</u> spp.		
<u>F. fusca</u> L.	(Field)	
<u>F. (Neoformica)</u> sp.	(Field, Oak, and Pine)	
<u>Lasius alienus</u> (Foerster)	(Field, Forest, and Pine)	
<u>L. neoniger</u> Emery	(Carriion?)	
<u>Camponotus pennsylvanicus</u> (DeG.)	(Carriion?)	
<u>Camponotus americanus</u> Mayr	(Pine and Forest)	
<u>Myrmica</u> spp.	(Carriion?)	
<u>Leptothorax longispinosus</u> Roger	(Pine and Forest)	
<u>Crematogaster cerasi</u> (Fitch)	(Field)	
<u>Aphaenogaster</u> sp.	(Field)	
<u>A. tennesseensis</u> (Mayr)	(Forest)	

Phylum Chordata		
Class Osteichthyes		
Order Perciformes		
Family Centrarchidae		
<u>Lepomis macrochirus</u> Rafinesque--Blue gill		(Pond)
<u>L. cyanellus</u> Rafinesque--Green sunfish		(Pond)
<u>L. humilis</u> (Girard)--Orange-spotted sunfish		(Pond)
<u>L. cyanellus</u> x <u>L. humilis</u> -hybrid sunfish		(Pond)
Order Cypriniformes		
Family Cyprinidae		
<u>Hybopsis plumbea</u> (Agassiz)--Northern creek chub	(Pond)	
<u>Carassius auratus</u> (L.)--Goldfish	(Pond and Desplaines)	
<u>Notemigonus crysoleucas</u> (Mitchill)--Golden shiner	(Pond)	
<u>Campostoma anomalum</u> (Raf.)--Stoneroller	(Pond)	
Family Ictaluridae		
<u>Ictalurus melas</u> (Raf.)--Black bullhead		(Pond)
Class Amphibia		
Order Caudata		
Family Ambystomidae		
<u>Ambystoma tigrinum</u> (Green?)--Tiger salamander		
Order Salientia		
Family Bufonidae		
<u>Bufo terrestris americanus</u> Holbrook--Toad		(Forest)
Family Hylidae		
<u>Pseudacris triseriata</u> (Wied.)--Tree frog		(Forest Pond)
Family Ranidae		
<u>Rana catesbeiana</u> Shaw--Bullfrog		
Class Reptilia		
Order Serpentes		
Family Colubridae		
<u>Elaphe vulpina</u> (B. & G.)--Fox snake		(Field)
<u>Natrix sipedon</u> (L.)--Water snake		(Lake)
<u>Storeria dekayi</u> (Holbrook)--Dekay's snake		(Forest)
<u>Thamnophis sirtalis</u> (L.)--Garter snake		(Field)
Order Testudinata		
Family Testudinidae		
<u>Gopherus polyphemus</u> (Daudin)--Gopher turtle		(Introduced)
Class Aves		
Order Ciconiiformes		
Family Ardeidae		
<u>Ardea herodias</u> L.--Great blue heron		(DesPlaines Floodplain)
<u>Casmerodius albus egretta</u> (Gmelin)--Egret		(DesPlaines Floodplain)
<u>Butorides virescens</u> (L.)--Green heron		(DesPlaines Floodplain)
<u>Nycticorax nycticorax hoactli</u> (Gmelin)--Black-crowned night heron		(DesPlaines Floodplain)

Order Anseriformes

Family Anatidae

- Anas platyrhynchos L.--Mallard (River and Ponds)
A. discors L.--Blue-winged teal (Pond)

Order Falconiformes

Family Buteonidae

- Buteo jamaicensis (Gmelin)--Red-tailed hawk (Forest)
Buteo lineatus (Gmelin)--Red-shouldered hawk (Forest)
B. platypterus (Vieillot)--Broad-winged hawk (Forest)
B. lagopus s.johannisi (Gmelin)--Rough-legged hawk (Field?)

Family Falconidae

- Falco sparverius L.--Sparrow hawk (Field)

Order Galliformes

Family Phasianidae

- Colinus virginianus (L.)--Bobwhite (Osage Orange Hedge)
Phasianus colchicus L.--Ring-necked pheasant (Field)

Order Charadriiformes

Family Charadriidae

- Charadrius vociferus vociferus L.--Killdeer
Larus argentatus smithsonianus Coues--
Herring gull (Desplaines River)

Order Columbiformes

Family Columbidae

- Zenaidura macroura carolinensis (L.) Mourning dove

Order Cuculiformes

Family Cuculidae

- Coccyzus americanus (L.)--Yellow-billed cuckoo

Order Caprimulgiformes

Family Caprimulgidae

- Chordeiles minor (Forster)--Nighthawk

Order Micropodiformes

Family Apodidae

- Chaetura pelagica (L.)--Chimney swift

Order Piciformes

Family Picidae

- Colaptes auratus luteus Bangs--Yellow-shafted flicker

- Centurus carolinus zebra (Boddaert)--

Red-bellied woodpecker (Forest)

- Melanerpes erythrocephalus (L.)--Red-headed woodpecker (Forest)

- Dendrocopos villosus (L.)--Hairy woodpecker (Forest)

- D. pubescens midianus (Swainson)--Downy woodpecker (Floodplain)

Order Coraciiformes

Family Alcedinidae

- Megaceryle alcyon (L.)--Kingfisher (Floodplain)

Order Passeriformes

Family Tyrannidae

- Tyrannus tyrannus (L.)--Eastern kingbird
Myiarchus crinitus boreus Bangs--Crested flycatcher
Sayornis phoebe (Latham)--Eastern phoebe
Empidonax traillii (Audubon)--Alder flycatcher (Floodplain)
Contopus virens (L.)--Eastern wood peewee (Forest)
Nuttallornis borealis (Swainson)--Olive-sided flycatcher

Family Hirundinidae

- Riparia riparia (L.)--Bank swallow
Hirundo rustica erythrogaster Boddaert--Barn swallow
Progne subis (L.)--Purple martin

Family Corvidae

- Cyanocitta cristata bromia Oberholser--Blue jay
Corvus brachyrhynchos Brehm--Crow

Family Paridae

- Parus atricapillus L.--Black-capped chickadee (Forest)
P. bicolor L.--Tufted titmouse

Family Sittidae

- Sitta carolinensis cookei Oberholser--White-breasted nuthatch

Family Certhiidae

- Certhia familiaris americana Bonapart--Brown creeper

Family Troglodytidae

- Troglodytes aedon Vieillot--House wren
Thryothorus ludovicianus (Latham)--Carolina wren

Family Mimidae

- Dumetella carolinensis (L.)--Catbird
Toxostoma rufum (L.)--Brown thrasher

Family Turdidae

- Turdus migratorius L.--Robin
Hylocichla mustelina (Gmelin)--Wood thrush
Sialia sialis (L.)--Bluebird

Family Sylvaniidae

- Regulus satrapa Lichtenstein--Golden-crowned kinglet

Family Bombycillidae

- Bombycilla cedrorum Vieillot--Cedar waxwing

Family Sturnidae

- Sturnus vulgaris L.--Starling

Family Vireonidae

- Vireo griseus noveboracensis (Gmelin)--White-eyed vireo (Forest)

- V. olivaceus (L.)--Red-eyed vireo

- V. gilvus (Vieillot)--Warbling vireo

Family Parulidae

- Mniotilla varia (L.)--Black and white warbler

- Vermivora peregrina (Wilson)--Tennessee warbler

- Dendroica petechia aestiva (Gmelin)--Yellow warbler

- D. magnolia (Wilson)--Magnolia warbler
 D. fusca (Muller)--Blackburnian warbler
 D. pennsylvanica (L.)--Chestnut-sided warbler
Seiurus aurocapillus (L.)--Oven-bird (Forest)
S. motacilla (Vieillot)--Louisiana water-thrush
Geothlypis trichas brachidactyla (Swainson)--Yellow-throat
Icteria virens (L.)--Yellow-breasted chat
Setophaga ruticilla (L.)--Redstart

Family Ploceidae

- Passer domesticus (L.)--English or house sparrow

Family Icteridae

- Dolichonyx oryzivorus (L.)--Bobolink (Field)
Sturnella magna (L.)--Eastern meadowlark (Field)
S. neglecta Audubon--Western meadowlark (Field)
Agelaius phoeniceus (L.)--Red-wing (Field and Marsh)
Icterus galbula (L.)--Baltimore oriole
Quiscalus quiscula versicolor Vieillot--Bronzed grackle
Molothrus ater ater (Boddaert)--Eastern cowbird

Family Thraupidae

- Piranga olivacea (Gmelin)--Scarlet tanager

Family Fringillidae

- Richmondena cardinalis (L.)--Cardinal
Pheucticus ludovicianus (L.)--Rose-breasted grosbeak
Passerina cyanea (L.)--Indigo bunting
Spiza americana (Gmelin)--Dickcissel
Spinus tristis tristis (L.)--Goldfinch
Pipilo erythrorthalmus (L.)--Red-eyed towhee
Passerculus sandwichensis (Gmelin)--Savannah sparrow
Passerherbulus henslowii (Audubon)--Henslow's sparrow
Junco hyemalis (L.)--Slate-colored junco
Spizella arborea (Wilson)--Tree sparrow
S. pusilla (Wilson)--Field sparrow (Field)
Melospiza georgiana (Latham)--Swamp sparrow (Marsh)
M. melodia euphonia Wetmore--Song sparrow

Class Mammalia

Order Marsupialia

Family Didelphidae

- Didelphis marsupialis virginiana Kerr--Virginia opossum (Forest)

Order Insectivora

Family Soricidae

- Sorex cinereus Kerr--Cinereous shrew (Forest)
Blarina brevicauda talpoides Gapper--Northern short-tailed shrew (Forest, Field, Pine)

Order Chiroptera

Family Vespertilionidae

- Myotis sp.--Brown bat

Order Carnivora

Family Procyonidae

Procyon lotor hirtus Nelson & Goldman--Raccoon (Forest)

Family Mustelidae

Mustela frenata noveboracensis Emmons.--

Long-tailed weasel (Forest)

M. vison letifera Hollister--Mississippi Valley Mink*Mephitis mephitis* --Skunk

Family Canidae

Vulpes fulva Desmarest.--Red fox (Field?)*Urocyon cinereoargenteus* Schreber--Gray fox

Order Rodentia

Family Sciuridae

Marmota monax monax L.--Woodchuck*Citellus tridecemlineatus* Mitchell--Thirteen-lined ground squirrel*C. franklinii* Sabine--Franklin ground squirrel*Tamias striatus griseus* Mearns--Chipmunk*Xciurus carolinensis leucotis* Gapper--Northern gray squirrel*S. niger rufiventer* Geoffroy--Fox squirrel*Glaucomys volans volans* L.--Flying squirrel

Family Castoridae

Castor canadensis Kuhl.--Beaver (Along Desplaines River)

Family Cricetidae

Peromyscus leucopus noveboracensis Fisher--White-footed mouse*Microtus pennsylvanicus* Ord.--Eastern meadow mouse*Ondatra zibethicus* (L.)--Muskrat

Family Muridae

Mus musculus L.--House mouse*Rattus norvegicus* Erxleben--Norway rat

Order Lagomorpha

Family Leporidae

Sylvilagus floridanus mearnsii Allen--Mearns cottontail rabbit

Order Artiodactyla

Family Cervidae

Dama dama Frisch--Fallow deer (Introduced Herd)*D. virginiana borealis* (Miller)--White-tailed deer

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APPENDIX III

Vegetation Maps

In this section are presented four maps showing the major vegetation associations of Argonne National Laboratory. Each map represents approximately one-fourth of the Laboratory property. The base map is an aerial photo mosaic which was made in November 1965. Major vegetation associations were identified by ground inspection by A. S. Messenger in the summer of 1967. No significant changes in the associations shown on the original map were noted during the 1967 survey, and it is regarded as accurate to that time. The scale of the maps is one inch = 800 feet. The symbols on the map are as follows:

Ba	Basswood	PM	Prairie marsh
BW	Black walnut	QA	White oak (<u>Quercus alba</u>)
BE	Boxelder	QM	Bur oak (<u>Quercus macrocarpa</u>)
Cx	Sedge (<u>Carex</u>)	QR	Red oak (<u>Quercus rubra</u>)
CTM	Cattail marsh	QV	Black oak (<u>Quercus velutina</u>)
Ch	Cherry	RP	Red pine (plantation)
Dg	Dogwood	S	Willow (<u>Salix</u>)
F	Ash (<u>Fraxinus</u>)	ScM	Bulrush (<u>Scirpus</u>) marsh
G	Grass (mostly exotic)	SiM	Silver maple
GM	Grass marsh	SpM	Bur-reed (<u>Sparganium</u>) marsh
Ha	Hawthorne and wild crabapple	SuM	Sugar maple
JP	Jack pine (plantation)	Su	Sumac
Lo	Locust	U	Elm
OO	Osage-orange (windbreak)	W	Undifferentiated weedy forbs with some grasses
P	Pond	WP	White pine (plantation)
PD	Cottonwood (<u>Populus deltoides</u>)		



Fig. 1. Major Vegetation Associations of the Northwest One-fourth of the Argonne National Laboratory Property



Fig. 2. Major Vegetation Associations of the Northeast One-fourth of the Argonne National Laboratory Property



Fig. 3. Major Vegetation Associations of the Southwest One-fourth of the Argonne National Laboratory Property



Fig. 4. Major Vegetation Associations of the Southeast One-fourth of the Argonne National Laboratory Property

APPENDIX IV

Quantitative Survey: ANL Old Field

The following tables are a consolidation of results of multiple collections by varied mechanisms, but depend primarily upon Berlese extraction, sweeping, and direct observations. The tables show averaged weights of material collected, and relative abundance of plant and animal taxa in the average square meter collected to a depth of 8 cm below the soil surface. Data were collected from a 95-acre old field during July 1967.

TABLE A. Average Total Weights of Strata in an Argonne Old Field

	Weight, gm/m ²
Subterranean Stratum	
Wet weight	61,740
Dry weight ^a	50,940
Percent free water	17.5
Floor Stratum	
Wet weight	1,947.6
Dry weight ^a	1,193.0
Percent free water	38.7
Herbaceous Stratum	1,160.5

^aWeight after one week of Berlese extraction.

TABLE B. Flora: Average Plant Density in an Argonne Old Field

Component	Plants/m ²
Bryophyta	
Unidentified Musci	4.8
Angiospermae	
Monocotyledoneae	
Graminae	
Poa spp.	(85 percent cover generally)
Phleum sp. (Timothy)	1.0
Alopecurus sp. (Foxtail)	0.2

TABLE C. Fauna: Number of Animals Collected from
One Square Meter of Various Strata of an Argonne Old Field

Component	Subterranean	Floor	Herbs	Shrubs	Total
Mollusca					
Gastropoda					
Pulmonata					
Limacidae	0	3.2	0	0	3.2
Annelida					
Oligochaeta					
Plesiopora					
Enchytraeidae	12.8	0	0	0	12.8
Opisthopora					
Lumbricidae	19.2	0	0	0	19.2
Arthropoda					
Crustacea					
Isopoda					
Porcellionidae	60.8	3.6	0	0	64.4
Arachnida					
Pseudoscorpiones	25.6	2.8	0	0	28.4
Opiliones					
Phalangidiidae	0	0.4	0	0	0.4
Araneae					
Attidae	3.2	3.6	0.3	0.2	7.3
Clubionidae	35.2	0.4	0	0	35.6
Lycosidae	6.4	1.6	0	0	8.8
Thomisidae	0	0	0.3	0.3	0.6
Other spiders	99.2	4.8	0.1	0.3	104.4
Acari					
Monostigmata	473.6	91.2	0	0	564.8
Trombidiformes	1875.2	164.4	0	0	2039.6
Sarcoptiformes	12217.6	1597.4	0	0	13815.0
Diplopoda					
Julidae	0	0.8	0	0	0.8
Chilopoda					
Lithobiidae	35.2	2.0	0	0	37.2
Linoteniidae	3.2	0.4	0	0	3.6
Sympyla	41.6	0	0	0	41.6
Insecta					
Collembola					
Isotomidae	3458.4	198.4	0	0	3656.8
Entomobryidae	3452.2	136.0	0	0	3588.2
Sminthuridae	265.6	7.2	0	0	272.8
Aptera					
Campodeidae	336.0	0	0	0	336.0
Protura					
Eosentomidae?	684.0	0	0	0	684.0
Orthoptera					
Acrididae	0	0	1.6	0.3	1.9
Gryllidae	6.4	0	0.5	0	6.9
Tettigoniidae	0	0	0.4	0	0.4
Homoptera					
Aphidiidae	102.4	0.8	2.8	0.5	106.5
Cercopidae	0	0	1.6	0.4	2.0
Cicadellidae	19.2	4.8	4.7	2.8	31.5
Fulgoridae	0	0.8	1.1	0.3	2.2
Membracidae	0	0.4	0.3	0	0.7
Nymphs	156.2	28.0	2.0	0	186.2

TABLE B (Contd.)

Component	Plants/m ²
Dicotyledoneae	
Rosaceae	
<u>Crataegus</u> sp. (Hawthorne)	0.1
<u>Fragaria</u> <u>virginiana</u> (Strawberry)	0.4
<u>Potentilla</u> sp.	0.9
<u>Geum</u> sp.	0.1
<u>Agrimonia</u> sp.	0.3
<u>Prunus</u> sp. (Cherry)	0.1
<u>Rubus</u> sp. (Blackberry)	0.4
Vitaceae	
<u>Vitis</u> sp. (Grape)	1.1
Cruciferae	
<u>Unidentified</u> spp. of cress	33.0
Leguminosae	
<u>Melilotus</u> sp. (clover)	0.1
<u>Vicia</u> sp. (crown vetch)	5.3
Oxalidaceae	
<u>Oxalis</u> sp.	0.3
Violaceae	
<u>Viola</u> spp.	0.2
Umbelliforae	
<u>Daucus</u> <u>carota</u> (Queen Anne's lace)	2.8
Asclepiadaceae	
<u>Asclepias</u> <u>syriaca</u> (milkweed)	0.2
Convolvulaceae	
<u>Convolvulus</u> sp. (bindweed)	2.8
Solanaceae	
<u>Solanum</u> <u>carolinense</u> (horse nettle)	0.1
Compositae	
<u>Solidago</u> sp. (goldenrod)	14.5
<u>Aster</u> sp.	15.8
<u>Ambrosia</u> spp. (ragweeds)	2.2
<u>Silphium</u> <u>terebinthinaceum</u>	0.2
<u>Sonchus</u> sp. (sow thistle)	0.2
<u>Achillea</u> sp. (yarrow)	76.0
<u>Taraxacum</u> sp. (dandelion)	0.1
<u>Erigeron</u> sp. (daisy fleabane)	0.1
<u>Cirsium</u> sp. (thistle)	0.5
Miscellaneous forbs	8.6

In addition to the 85% cover by grasses, there are 166.4 forbs per square meter. Of the latter there are 109.6 composites (66%), 33.0 crucifers (20%), and 5.4 legumes (3%).

APPENDIX V

Chicago Area Prairies

The following list of native prairie relicts includes all those known to the survey group in the Chicago Area (i.e., those counties 50 miles or less from Chicago). Not included are the artificially restored plots such as the one at Morton Arboretum. This tabulation is intended for future comparisons and sources of biota or sod for the Argonne prairie restoration.

DuPage County, Illinois

Argonne Wet/Dry Sag Prairie: Between the DesPlaines River and the AT&SF Railroad at the southern part of the Argonne Site. An unusual lime prairie that floods in spring and becomes bone-dry in autumn. It is based on 0 to 6 in. of soil underlaid by limestone and was probably grazed in the past.

Ontarioville Cemetery: On the north side of Fisher Road, east of Church Road, southwest of Ontarioville, and southwest of U.S. 20. This is mesic prairie that had been badly degraded and is now being rehabilitated.

St. Stephen's Cemetery: On the north side of the C&GW Railroad, about 1/4 mile west of the old Gretna station on Wheaton's Main Street (station now called Carol Stream). Perhaps 1/8 acre of this prairie is good mesic prairie. It is owned by a Roman Catholic congregation.

Cook County, Illinois

Bridgeview Prairie: Formerly an extensive prairie of over 100 acres within the village of Bridgeview, consisting of degraded prairie and islands of mesic prairie. Destruction began in 1962, but remaining plots are often wet-mesic, such as the two acres northeast of the corner of Oketo and 81st Street.

Glenbrook North Prairie: Near Willow and Shermer Roads; owned by Glenbrook North High School, whose students use the area for study.

Markham Prairie: Northeast corner of Markham, west of I-294, east of Kedzie Avenue, north of 159th Street, and south of I-57. Perhaps 10 acres of sandy prairie in various states of disturbance.

Oak Lawn Prairie: Near 98th and Kostner. Almost all destroyed in the last five years. A remnant of this mesic prairie may remain nearby east of Chicago Ridge, just northeast of the IHB Railroad.

O'Hare Prairie: In Schiller Park, in a triangle between east side of U.S. 12-45 and the west side of I-294, south of Kennedy Expressway and north

TABLE C (Contd.)

Component	Subterranean	Floor	Herbs	Shrubs	Total
Hemiptera (Heteroptera)					
Anthocoridae	3.2	0	0	0	3.2
Lygaeidae	3.2	0	0	0	3.2
Miridae	3.2	0.8	1.6	0.2	5.8
Nabidae	3.2	0	0.1	0	3.3
Phymatidae	0	0	0.2	0	0.2
Tingidae	0	0.8	1.7	0	2.5
Nymphs	112.0	17.2	0.1	0	129.3
Thysanoptera					
Phloeoethripidae	156.8	140.8	0.2	0	297.8
Corrodentia					
Psocidae	12.8	4.4	0	0	17.2
Lepidoptera					
Geometridae larvae	0	0.4	0	0	0.4
Nymphalidae	0	0	0.1	0	0.1
Unidentified moth	0	0	0.1	0	0.1
Larvae	22.4	8.8	0	0	31.2
Neuroptera					
Chrysopidae	0	0.4	0	0	0.4
Coleoptera					
Anthicidae	3.2	0.4	0	0	3.6
Buprestidae	0	0	0	0.1	0.1
Carabidae	3.2	1.2	0	0	4.4
Chrysomelidae	9.6	1.2	4.7	1.4	16.9
Coccinellidae	0	0.4	0	0.3	0.7
Cucujidae	0	5.6	0	0	5.6
Curculionidae	67.2	7.6	0.2	0	75.0
Elateridae	25.6	0.4	0	0	26.0
Lagriidae	0	0	0	0.1	0.1
Lathridiidae	3.2	0.4	0	0	3.6
Phalacridae	0	0	0.3	0	0.3
Pselaphidae	19.2	0.4	0	0	19.6
Scarabaeidae	0	0.8	0	0	0.8
Scydmaenidae	6.4	0	0	0	6.4
Staphylinidae	96.0	5.6	0	0	101.6
Larvae	28.8	10.4	0	0	39.2
Hymenoptera					
Formicidae	537.6	598.2	1.0	0.5	1137.3
Andrenidae	0	0	0.1	0	0.1
Braconidae	0	0	0.4	0	0.4
Unidentified wasps	9.6	2.8	0.2	0.3	12.9
Diptera					
Agromyzidae	0	0	0.1	0.1	0.2
Chironomidae	0	3.6	0	0.1	3.7
Culicidae	0	0	0.2	0.1	0.3
Dolichopidae	0	0	0.1	0.2	0.3
Muscidae	0	0	0.2	0	0.2
Mycetophilidae	3.2	0.4	0	0.1	3.7
Phoridae	0	0.4	0	0	0.4
Trypetidae	0	0	0.8	0.1	0.9
Miscellaneous adults	0	2.4	0.1	0.2	2.7
Larvae	70.4	19.6	0	0	90.0
Pupae	0	3.2	0	0	3.2
Faunal Totals	24583.2	3091.6	28.2	8.9	27711.9

of Illinois 59. About $1\frac{1}{4}$ acres of mesic prairie, nearly weed-free and rich in species (some specimens included in the Argonne herbarium). Prairie extensions along the railroad to the north and south.

DeKalb County, Illinois

Elva Cemetery: East of the CNW Railroad, one mile south of Elva, 1.5 miles west of Illinois 23. About two acres of mesic prairie, badly invaded by Kentucky bluegrass.

Malta-Creston Prairie: Along the C&NW Railroad about half-way between Malta and Creston.

Lake County, Illinois

Berkeley Road Prairie: Near Deerfield, west of U.S. 41 on Berkeley Road at junction with Ridge Road, east of North Branch of the Chicago River. About 16 acres of tall grass (Andropogon gerardii).

Illinois Beach State Park: Near Zion, it contains a large area of sandy swell-and-swale prairie.

Kenosha County, Wisconsin

Chiwaukee Prairie: Located within 1/2 mile of Lake Michigan from Tobin Road (116th Street) south to the Illinois State Line, west to the C&NW Railroad. Extensive wet grassland and virgin sandy swell-and-swale prairie. It is extremely rich in wet prairie species.

Benedict Prairie: Near Woodruff, east of Benedict Road (first road west of I-94), south of U.S. 50 about 1/2 mile. A strip of prairie owned by The University of Wisconsin, along right-of-way of defunct railroad.

Lake County, Indiana

Cook Prairie: Perhaps ten acres of disturbed dry prairie, south of Indiana 8, east of U.S. 41, west of the NYC Railroad.

of Lawrence Avenue, intersected by Soo Railroad. It consisted of perhaps 25 acres of mesic prairie until October 1967 when most of the property was bulldozed for industrial development. About six acres remain, but are slated for development.

Peacock Prairie: West of Glenview, between Milwaukee Avenue, Central Road, and Greenwood Road. Formerly 20 acres, reduced to less than five of mesic prairie, practically weed-free and rich in now-rare species.

Santa Fe Prairie: South of Hodgkins, between the AT&SF Railroad and the DesPlaines River, between I-55 and U.S. 12-20-45. Perhaps ten acres or more of somewhat degraded prairie owned by the Santa Fe Railroad.

Shoe Factory Road Prairie: South side of Shoe Factory Road, east of Elgin, about 1/4 mile west of Illinois 59. Two to three acres of dry hill prairie on glacial kame where gravel has been dug. Owned by the Forest Preserve District of Cook County.

Unnamed Prairie: East of I-294 at the west edge of the C&NW switch yard, north of St. Charles Road, and south of Lake Street, near the Medusa Cement water tower. Probably destroyed during 1967.

Wolf Road and 31st Street Subdivision: North of Western Springs. Northwest corner consists of several blocks of land that were laid out in lots complete with sidewalks and fire hydrants in the 1930's. Contains some degraded prairie. Owned by realtors and Commonwealth Edison Co.

Grundy County, Illinois

Goose Lake Prairie: Seventeen hundred acres of wet grassland on both sides of the EJ&E Railroad, north of Lorenzo Road, a few miles east of Morris, south of the Illinois River.

I-55-GM&O-Illinois 53 Right-of-Way Prairie: Between Wilmington (Will County) and Gardner (Grundy County), and especially between Godley and Mazonia. Also from Gardner to Dwight and Odell. Possibly continues southwest of Odell. Railroad prairie.

Lorenzo Prairie: West of Lorenzo, north of Lorenzo Road in area of strip mining. Small wet grassland between field and stream which is a probable continuation of the Goose Lake Prairie.

Will County, Illinois

Vermont Cemetery: East side of EJ&E Railroad, three miles north of Normantown Junction and 1.5 miles east of Wolfs Station, 1.5 miles west

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